

Serial No.: 10/709,485
Confirmation Number: 3484
Applicant: LU, Wei

REMARKS

This preliminary amendment is to be considered in respond to the final office action mailed on January 29, 2007 which rejected claims 1-14.

Claims 1-14 had been rejected on obviousness grounds and in response, claim 1 has been amended to more particularly point out and distinctly claim the invention for which protection is being sought, namely by adding the limitations of "open air-interfaces" and "based on open air-interface BIOS architecture." The added recitations are supported by the specification throughout, for example by the description of Air-Interface BIOS shown in paragraphs 20, 38, 40 and FIG 2, 1. In addition, more detailed distinction to the cited art has been respectfully contended.

Claims 2-14 have also been amended to more particularly point out and distinctly claim the invention for which protection is being sought.

Claims 15-20 had been cancelled.

The above changes place the application in condition for allowance. In addition, request is respectfully made for entry of new claims 21-26 that are also believed to be allowed. Therefore, a Notice of Allowance is respectfully solicited.

Claims 1-14 and new claims 21-26 are currently pending in the present invention.

IN RESPONSE TO THE OFFICE ACTION:

Applicants respectfully traverse the § 103 (a) rejections with the following arguments:

35 USC § 103

As to claim 1, the Examiner first states that “Bushnell et al disclose a dual mode telephone station set with one directory number (see column 4, line 59 – column 5, line 55), which reads on the claimed, “wireless communication terminal device supporting various different wireless air interfaces in the same device with same unique identifier and capable of communicating with other devices, systems or networks through a wireless medium”.”

Applicants contend that claim 1, as amended, are not obvious in view of Bushnell et al. because Bushnell et al. does not teach each and every feature of claim 1. In a first example, Bushnell et al. does not teach “a wireless communication terminal device supporting various different wireless air interfaces, based on open air-interface BIOS architecture.” Applicants respectfully point out that in FIG 2, FIG 1 and paragraph 20 of Applicants’ description which states:

“The OWA of the present invention defines *a common Air-Interface BIOS (basic input/output system)* across the entire physical layer and the immediate link layer and MAC (media access control) layer, etc, so that the main functional units (including hardware and system software, etc) can be easily defined by the *Open Interfaces*. This *Air-Interface BIOS* of the present invention develops the new definable and programmable wireless modules to enable the standalone wireless subsystems with open interface standards, which become the optimal solution to resolve the interoperability and compatibility problems in the wireless communications. *The BIOS model* of the present invention also greatly support the convergence with the broadband wireless networks and the computer and data communications where similar open architecture apply.”

Applicants' Paragraph 38 and paragraph 40 further states:

“The open Air-Interface BIOS architecture of this invention is a revolutionary approach for the design of the next generation wireless and mobile communications. The BIOS of the invention defines the basic interface structure for the multiple wireless standards (either common standards or user-defined), standards switching, functional modules as well as switching between internal and/or external base-band modules, etc,” and

“Some standalone application software modules, which are portable, switchable and transferable, are normally locating on the layer of open Air Interface BIOS and Drivers, through a standard real time OS (or user-defined OS) and the kernel which helps the user-friendly programming and further development of the applications. These OS and BIOS layers are system software and therefore very important for the whole system performance. In addition, the Open Interface of the BIOS layer maps the different parameters, structures and signaling, etc of various air-interfaces and various functional modules into the common and open processing engines, open controllers and other open subsystems.”

Applicants contend that Bushnell et al limits to dual model telephone supporting specific cordless and specific cellular standard only. Bushnell et al never teach or suggest to support multiple wireless standards based on the open air interface BIOS architecture.

Further to claim 1, the Examiner states that “The cordless base station (see column 5, line 57 – column 6, line 24) reads on the claimed, “advanced computer system equipped with networking facilities to access various different backbone networks either through wireless networking interfaces or through broadband wireless access systems”.”

Applicants contend that claim 1, as amended, are not obvious in view of Bushnell et al. In the second example, Bushnell et al. does not teach or suggest “an advanced computer system, to access various different backbone networks, through broadband wireless communication systems of said open air-interfaces”. Applicants point out that in Bushnell

et al. column 5, line 57 – column 6, line 24, and FIG 3-5, the cordless base station connects to the backbone networks through fixed wireline connection limited to POTS only. Applicants respectfully request the Examiner explicitly state what he understands in our invention as the “advanced computer system” which is a networking access equipment to the backbone networks through either the wireline network interface unit or the broadband wireless system of the open air-interfaces, such as IEEE802.16 standards or microwave radio standards, if the Examiner rejects Applicants argument.

Further to claim 1, the Examiner states that “The dual mode telephone operates as a cellular telephone or a cordless telephone (see column 4, line 59 – column 5, line 11), which reads on the claimed, “advanced transceiver system supporting various different air interfaces to interconnect said wireless communication terminal device through the air link, said transceiver system connecting to said computer system to construct the base-station as a whole”.”

Applicants contend that claim 1, as amended, are not obvious in view of Bushnell et al. In the third example, Bushnell et al. does not teach or suggest “an advanced base transceiver system, based on said open Air-Interface BIOS architecture, to interconnect said wireless terminal device through said open air-interfaces.” Applicants respectfully point out that the Examiner confuses the “advanced base transceiver system” with the “terminal device or telephone device”. Applicants point out that in Bushnell et al. FIG3-5, the dual mode telephone never performs the function of the advanced base transceiver system or the base-station as a whole.

Applicants respectfully point out that in FIG 1 and paragraph 34 of Applicants’ description regarding the base-station which states:

“The Air-interfaces Processing Engines of the invention support the physical layer, link layer and MAC (media access control) layer processing of the *common radio transmission technologies (or called air-interfaces) of TDMA (time division multiple access, CDMA (code division multiple access) and FDMA (frequency division multiple*

access), as well as the user-defined new air-interfaces. These open processing engines are the core functional units to support *multiple wireless standards in such a single system* of the present invention.”

Applicants further point out that in Bushnell et al. FIG3-5 and the corresponding descriptions, the cordless base station is only limited to the traditional POTS line for call forwarding and re-routing between cordless and cellular modes which is totally different from our invention of open interface architecture.

Further to claim 1, the Examiner states that “The cellular communication network with BSC, MSC and HLR connected with wires (see figure 3) reads on the claimed “wireless terminal device connecting to different wireless networks through its networking interfaces in the said wireless terminal device.”

Applicants contend that claim 1, as amended, are not obvious in view of Bushnell et al. In the fourth example, Bushnell et al. does not teach or suggest “said wireless terminal device connecting to different wireline networks through its wireline Network Interface Unit (NIU) in the said wireless terminal device.” Applicants point out that in Bushnell et al. FIG3-5, there was never a teaching or suggestion to support the dual mode telephone to connect to the wireline network directly.

Applicants respectfully point out that in FIG1, FIG2, paragraph 39 and paragraph 41 of Applicants’ description which states:

“The model of the invention is constructed on the common hardware platform consisting of Smart Antennas, Radio Frequency (RF) units, Base-Band units, System Controllers and other User-defined I/O (Input/Output) as well as *Network Interface Unit (NIU)* and Memory Cards (SIM cards, etc), etc,” and

“Some software modules including Air Interface modules and Controller modules, etc may be downloadable *from the broadband network connection through the NIU*, or portable by inserting the Memory Card (or SIM card) into the terminal memory slot.”

Applicants also respectfully point out that the Examiner confused this wireline networking capability to the “wireless networking feature” in typing wrongly the “wireline” with “wireless” in line 2, page 3 of the office action. Applicants are further confused because the Examiner states that Bushnell et al. teaches “through its networking interface in said wireless terminal device”, but Applicants can find no reference to “through its networking interface in said wireless terminal device” in Bushnell et al.

Further to claim 1, the Examiner states that “In a similar field of endeavor, Wee et al disclose a portable wireless system that may be configured to operate as a third party wireless repeater (see paragraph 31). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Bushnell et al with Wee et al to include the above configuration as a wireless repeater in order to increase the utilization of existing wireless network infrastructures by making one or more unused wireless channels available to other devices as suggested by Wee et al (see paragraph 27). The combination reads on the claimed, “said base station connecting to other base station either over the wireline networks or over broadband wireless access system through said computer system, or by over-the-air networks through said transceiver system, said wireless terminal device connecting to other wireless terminal device through the air link in an ad-hoc mode”.”

Applicants contend that claim 1, as amended, are not obvious in view of Bushnell et al with Wee et al. In the fifth example, both Bushnell et al and Wee et al. do not teach or suggest “said base-station connecting to other said base-station, through said base transceiver system of said open air-interfaces in an ad-hoc mode,” and “said wireless terminal device connecting directly to other said wireless terminal device through said open air-interfaces in an ad-hoc mode.”

Applicants point out that in Wee et al. FIG1, the cellular telephone can function as a Repeater, but not a base station because it is totally controlled by its subscribed service provider and its channel resource is very limited as an individual subscriber of the cellular network. Furthermore, each cellular telephone has no capability to connect each other directly without going through the backbone cellular wireless network.

Applicants also point out that in Bushnell et al. FIG3-7 and corresponding descriptions, the different cordless base stations do not connect each other directly through wireless radio link. Also, the different dual mode telephones do not connect each other directly through wireless link without going through the backbone wireless or wireline networks.

Applicants respectfully point out that in FIG2, paragraph 22 and paragraph 44 of Applicants' description which states:

"The open terminal of the present invention can be reconfigured for intelligent communicating, mobile computing, mobile office, conformance testing, ad-hoc connecting as well as emergency station for both personal emergency and city-wide emergency."

"This open base-station architecture of the present invention also supports very well the wireless routing functions and the wireless ad-hoc functions so that the wireless networks can operate independently from the backbone wireline networks any time controlled by the said open base-station. This is very important and useful for special applications like military applications, emergency applications or industrial applications, etc."

Applicants contend that this open interface based multi-layered wireless infrastructure (terminal to base-station, terminal to terminal and base-station to base-station) in the ad-hoc mode is never been disclosed in the prior art. Thus, it is impossible and not obvious for a person of ordinary skill in the art to modify Bushnell et al with Wee et al to come out the Applicants disclosure.

In asserting this rejection, two separate prior art references had to be combined. However, that combination failed to include the claim element of several system components based on “open air-interface BIOS architecture.” Prima facie obviousness is lacking because claim 1 recites this missing element.

Based on the preceding arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Bushnell et al in view of Wee et al. and is in condition for allowance. Since claims 2-14 depend from claim 1, Applicants respectfully maintain that claims 2-14 are likewise in condition for allowance.

As to claim 2, the Examiner states that “Bushnell et al disclose a dual mode handset which reads on the claimed, “open processing engine processing the signals and protocols of various different air-interfaces for over-the-air networking and transmission.” The mobile phone communicates wirelessly with a base station which reads on the claimed, “reconfigurable digital converter transforming the received signals to the digital base-band signals and vice versa, and connecting to said open processing engine,” wherein wireless communication necessitates a digital converter. The mobile phone may communicate via a cordless base station or a cellular mode which reads on the claimed. “programmable radio frequency (RF) module and smart antenna processing module of different frequencies supporting different air-interfaces, and connecting to said digital converter,” and, “an open wireless BIOS (basic input/output system) structure capable of providing the common and open interfaces to said processing engine, said digital converter, said RF module and said SDM.”

Applicants contend that claim 2, as amended, is not obvious in view of Bushnell et al. because Bushnell et al. does not teach or suggest every feature of claim 2. For example Bushnell et al. does not teach or suggest “an open wireless BIOS (basic input/output system) architecture capable of providing the common and open interfaces to said processing engine, etc, and map said different air interfaces into different parameters of said open interfaces.” Applicants point out that in Bushnell et al. FIG3 and (column 4,

line 59 – column 5, line 55), the dual mode handset just simply integrates the cordless phone with the cellular phone without defining the common and open interface platform. Applicants respectfully point out that FIG 2, FIG 1, paragraphs 20, 38 and 40 of Applicants' description clearly disclose such invention.

In the second example, Bushnell et al. does not teach or suggest “a software defined module (SDM) containing parameters, algorithms and protocols of said open air-interfaces.” Applicants respectfully point out that in FIG1 and paragraph 36 of Applicants' description which states:

“Programmable DSP (digital signal processing) and Software Definable Modules (SDM) - It defines the portable, transferable and switchable software modules containing air-interface frameworks, structures, algorithms and/or parameters, etc in a plug-play memory card (or called SIM card) or downloadable from the broadband internet connections. It also defines the modules" switching between different air-interfaces by software and DSP, etc.

In the third example, Bushnell et al. does not teach or suggest “an open processing engine processing the signals and protocols of open air-interfaces”, “open digital converter”, and “open radio frequency (RF) module.” Applicants contend that simply integration of cordless and cellular phone functions does not automatically result in the open architecture platform which is independent of the backbone networks. Applicants point out that in Bushnell et al. FIG3 and (column 4 – column 5), the dual mode phone is fully dependent to the backbone POTS line and MSC/HLR.

Further to claim 2, the Examiner states that “In a similar field of endeavor, Wee et al disclose a controller 102 that configures portable wireless system 10 to relay wireless signals between a third party electronic appliance and a wireless network that may be implemented in a separate module (e.g. a PC card, such as a PCMCIA card) that plugs into a legacy portable wireless devices which reads on the claimed, “software definable

module (SDM) containing parameters, algorithms and protocols of some wireless air-interfaces to be stored in an external memory card or downloaded from networks.”

Applicants contend that claim 2, as amended, is not obvious in view of Wee et al. because Wee et al. does not teach or suggest every feature of claim 2. For example, Wee et al. does not teach or suggest “software definable module (SDM) of open air-interface” (see Applicants’ paragraph 36 and FIG1). Applicants point out that in Wee et al. paragraph 33, the separate module (e.g., a PC card, such as a PCMCIA card) is a specific hardware module rather than an open software module.

Because of detailed technical difficulties, it is impossible to a person of ordinary skill in the art to modify Bushnell et al with Wee et al to come out our invention.

Based on the preceding arguments, Applicants respectfully maintain that claim 2 is not unpatentable over Bushnell et al in view of Wee et al. and is in condition for allowance.

As to claim 3, the Examiner states that “the combination of Bushnell et al and Wee et al discloses the dual mode telephone station is programmed to operated as a cordless telephone when in proximity of the cordless base station and operates as a cellular telephone when it is out of reach of the cordless base station which reads on the claimed, “system software module supporting dynamic spectrum management, spectrum sharing and resource management to increase spectrum efficiency and optimize the system performance.” When the dual mode telephone station set is in range of the cordless base station, the dual mode handset originated calls are routed through the local wire-line system and when the dual mode telephone station set is not in proximity to the cordless base station, the dual mode telephone station set registers with the cellular service provider which reads on the claimed, “convergence layer module converging wireline and wireless networks and services, as well as transmission convergence.” The transition between the cordless base station and the cellular system reads on the claimed, “configuration management module enabling flexible system re-configuration when

wireless air-interfaces changing, wireline networking changing or system setting changing.”

Applicants contend that claim 3, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 3. For example Bushnell et al. and Wee et al. do not teach or suggest “open system software module based on said open wireless BIOS architecture.” Applicants respectfully point out that in FIG1, FIG2 and paragraph 40 of Applicants’ description which states:

“These OS and BIOS layers are system software and therefore very important for the whole system performance. In addition, the open interface of the BIOS layer maps the different parameters, structures and signaling, etc of various air-interfaces and various functional modules into the common and open processing engines, open controllers and other open subsystems. The above mentioned application modules of the present invention include Standards Switcher between various air-interfaces; Convergence Standard modules for both service convergence, transmission convergence and convergence between wireline networks and wireless networks etc; Configuration Management modules for different applications, services and underlying system operations, etc.”

In a second example, Bushnell et al. and Wee et al. do not teach or suggest “open security module for the enhanced security management of the system.” Applicants respectfully point out that in FIG2 and paragraph 40 of Applicants’ description which states:

“Security Standard module for the enhanced security management of the terminal, for example, fingerprint scanning, pattern scanning, user detection, MAC layer encryption, etc.”

Applicants contend that the disclosed system modules are open modules which are independent to the network infrastructure. However, in Bushnell et al. FIG3-5 and

column 4-5, the dual mode handset and cordless base-station are limited to the call re-routing and forwarding functions fully dependent to the corresponding POTS line and specific cellular network.

Based on the preceding arguments, Applicants respectfully maintain that claim 3 is not unpatentable over Bushnell et al in view of Wee et al. and is in condition for allowance.

As to claim 4, the Examiner states that “the combination of Bushnell et al and We et al discloses the programming of the dual model telephone station reads on the claimed, “said wireless terminal device capable of system software running upon the system hardware directly while the application software executing on the real-time operating system standards through said open wireless BIOS.”

Applicants contend that claim 4, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 4. For example Bushnell et al. and Wee et al. do not teach or suggest “system software, application software and real-time OS running upon the system hardware *through open wireless BIOS.*” Applicants respectfully point out that FIG 1, FIG 2, paragraphs 20, 38 and 40 of Applicants’ description clearly disclose such invention.

As to claim 5, the Examiner states that “the combination of Bushnell et al and Wee et al discloses the operation of the dual mode telephone station set with the cordless base station and the cellular system which reads on the claimed, “said open processing engine decodes, de-channelizes and demodulates the base-band channel signals and control signals of said various air-interfaces into detailed digital signaling, traffic and control information.”

Applicants contend that claim 5, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 5. For example Bushnell et al. and Wee et al. do not teach or suggest

“open processing engine, *based on open wireless BIOS architecture.*” Applicants respectfully point out that FIG 1, FIG 2, paragraphs 20, 38 and 40 of Applicants’ description clearly disclose such invention.

As to claim 6, the Examiner states that “In a similar field of endeavor, Wee et al disclose a portable wireless system that may be configured to operate as a third party wireless repeater which reads on the claimed, “said base station can be reconfigured and re-programmed as wireless router, mobile soft switch or wireless gateway.”

Applicants contend that claim 6, as amended, is not obvious in view of Wee et al. because Wee et al. does not teach or suggest every feature of claim 6. For example Wee et al. does not teach or suggest “wireless router, or wireless gateway of said open air-interfaces.” Applicants respectfully point out that in Wee et al. paragraph 31, there is never any disclosure on the utilization of third party wireless repeater to become a router or gateway which is of totally different system architecture. Applicants further point out that paragraphs 22 and 42 of Applicants’ description clearly disclose such invention.

As to claim 7, the Examiner states that “In a similar field of endeavor, Wee et al disclose a portable wireless system that may be configured to operate as a third party wireless repeater which reads on the claimed, “said base station can be reconfigured to be mobile for military applications or special industrial applications that the said computer system connecting to the backbone networks through said broadband wireless access systems instead of said wireline networking interfaces.”

Applicants contend that claim 7, as amended, is not obvious in view of Wee et al. because Wee et al. does not teach or suggest every feature of claim 7. For example Wee et al. does not teach or suggest “a base station can be reconfigured to be a mobile base-station for military or special industrial application.” Applicants respectfully point out that in Wee et al. paragraph 31, there is never any disclosure on the utilization of third party wireless repeater to become a base station or a mobile base station which is of totally different architecture from a repeater. A repeater is just a simple transmission

equipment without MAC protocols, mobility management and resource management, etc which are required in base station systems. Applicants' paragraph 44 clearly discloses such invention.

As to claim 8, the Examiner states that "the combination of Bushnell et al and Wee et al discloses the use of CDMA which reads on the claimed, "said wireless terminal device and said base station can communicate each other over said various different air interfaces including CDMA."

Applicants contend that claim 8, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 8. For example Bushnell et al. and Wee et al. do not teach or suggest "wireless terminal device and base station of open wireless BIOS can communicate each other over open air interfaces." Applicants respectfully point out that Bushnell et al. (see FIG3-5) is limited to specific networks requiring MSC, HLR and POTS line. Applicants further point out that both Bushnell et al. and Wee et al. never teach or suggest supporting open air interfaces by open wireless BIOS architecture.

Based on the preceding arguments of claims 4-8, in asserting the rejection, two separate prior art references had to be combined. However, that combination failed to include the claim element of each claim. Because claims 4-8 comprising open system components of open air interfaces and open wireless BIOS, which are missing from the cited references, prima facie obviousness is lacking. Reconsideration and allowance of the claims 4-8 is respectfully requested.

As to claim 9, the Examiner states that "the combination of Bushnell et al and Wee et al discloses the dual mode telephone station is programmed to operated as a cordless telephone when in proximity of the cordless base station and operated as a cellular telephone when it is out of reach of the cordless base station which reads on the claimed, "running user-defined detecting technologies."

Applicants contend that claim 9, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 9. For example Bushnell et al. and Wee et al. do not teach or suggest “detecting open air interfaces (multiple air interfaces).” Applicants point out that Bushnell et al. column 4, lines 59-64 only tells how to transfer calls between cordless and cellular. Bushnell et al. never teach or suggest detecting multiple open air interfaces.

As to claim 10, the Examiner states that “the combination of Bushnell et al and Wee et al discloses the dual mode telephone station is programmed to operated as a cordless telephone when in proximity of the cordless base station and operates as a cellular telephone when it is out of reach of the cordless base station which reads on the claimed, “open operating systems supporting Windows, Linux or user-defined, open resource management covering spectrum, bandwidth, channels, capacity, processors, power, storage and services, open communication application software enabling user-friendly programming and services, common objects library and functional components defining the converged processing elements, open configuration management supporting system reconfiguration in base-band parts, RF parts, antenna parts and network parts”.”

Applicants contend that claim 10, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 10. For example Bushnell et al. and Wee et al. do not teach or suggest “open operating system and common objects library in the base station.” Applicants further respectfully point out that in Bushnell et al. FIG3-5 and column 4, lines 59-64, the dual mode telephone station is not a base station, and furthermore is not an open base station supporting multiple open air interfaces.

As to claim 11, the Examiner states that “the combination of Bushnell et al and Wee et al discloses the dual mode telephone station is programmed to operated as a cordless telephone when in proximity of the cordless base station and operates as s cellular telephone when it is out of reach of the cordless base station which reads on the claimed, “said open wireless BIOS defining the basic interface structure for the said various

different air-interfaces, said air-interfaces switching, said functional modules as well as switching between internal and external said modules.”

Applicants contend that claim 11, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 11. For example Bushnell et al. and Wee et al. do not teach or suggest “open wireless BIOS.” Applicants respectfully further point out that Bushnell et al. FIG3-5 and column 4, lines 59-64 only limit to dual mode specific standards without teaching or suggesting open air interfaces by open wireless BIOS architecture.

As to claim 13, the Examiner states that “in a similar field of endeavor, Wee et al disclose a controller 102 that configures portable wireless system 10 to relay wireless signals between a third party electronic appliance and a wireless network that may be implemented in a separate module (e.g. a PC card, such as a PCMCIA card) that plus into a legacy portable wireless device which reads on the claimed, “software definable module in said wireless terminal device can be stored in or installed from said external memory card or downloaded from any available networking facilities of said wireless terminal device.”

Applicants contend that claim 13, as amended, is not obvious in view of Wee et al. because Wee et al. does not teach or suggest every feature of claim 13. For example, Wee et al. does not teach or suggest “software definable module (SDM) of open air-interface” (see Applicants’ paragraph 36 and FIG1). Applicants point out that in Wee et al. paragraph 33, the separate module (e.g., a PC card, such as a PCMCIA card) is a specific hardware module rather than an open software module.

Based on the preceding arguments, Applicants respectfully maintain that claims 9-11 and 13 are not unpatentable over Bushnell et al in view of Wee et al. and are in condition for allowance.

As to claim 12, the Examiner states that “In a similar field of endeavor, Guo discloses beamforming antenna array which reads on the claimed, “using antenna arrays to process radio signals in both space and time to improve performance in presence of wireless fading and interference, using beamforming algorithm to increase received signal-over-noise-rate for desired directions, using diversify algorithm to combat fading in order to work at less SNR, using interference mitigation method to maximally reuse the channel frequencies, using spatial multiplexing algorithms to increase data speeds, for example MIMO.”

Applicants contend that claim 12, as amended, is not obvious in view of Guo because Guo does not teach or suggest every feature of claim 12. For example, Guo does not teach or suggest “diversity algorithm to combat fading in order to work at less SNR,” and “spatial multiplexing algorithms to increase data speed.” Applicants respectfully point out that Guo paragraph 42 is only limited for base station only, not applied to terminal system.

An advantage of the claimed invention, namely, optimized capability for dynamic spectrum management and spectrum sharing based on open wireless (air interfaces) BIOS architecture with open air interfaces. Further, use of this open air interfaces BIOS architecture together with the claimed smart antenna processing method, the system is capable of supporting multi-dimensional mobility handovers which has never been disclosed in prior art.

Because claim 2 is likewise in condition for allowance, and amended claim 12 is missing from the cited references, prima facie obviousness is lacking. Allowance of claim 12 is respectfully requested.

As to claim 14, the Examiner states that “the combination of Bushnell et al and Wee et al discloses the dual mode telephone station is programmed to operated as a cordless telephone when in proximity of the cordless base station and operates as a cellular telephone when it is out of reach of the cordless base station which reads on the claimed,

“open service convergence including transparent integrated services across both wireline and wireless networks,” and, “open transmission convergence including adaptive modulation, adaptive coding and adaptive equalization”. The Examiner also states “IP was well known in the art at the time of the invention.”

Applicants contend that claim 14, as amended, is not obvious in view of Bushnell et al. with Wee et al. because both Bushnell et al. and Wee et al. do not teach or suggest every feature of claim 14. For example, Bushnell et al. and Wee et al. do not teach or suggest “open transmission convergence of open air-interfaces based on open wireless BIOS architecture.” Applicants respectfully point out that Bushnell et al. (column 4, lines 59-64) dual mode handset is simply integrating cellular and cordless phones and is not an open convergence capability. Applicants further point out that Bushnell et al. FIG3-5 is totally limited to traditional circuit switching networks requiring POTS line and traditional cellular telephone networks requiring MIN/HLR in the traditional MSC.

Because claim 3 is likewise in condition for allowance, and amended claim 14 is missing from the cited references, prima facie obviousness is lacking. Allowance of claim 14 is respectfully requested.

Applicants believe this 103(a) rejection is because the reason to combine references must exist in the prior art and not in the Applicants disclosure per *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (fed. Cir. 1991).

The Examiner has cited the open base station or the open wireless terminal device as an obvious modification of Bushnell et al. in view of Wee et al. Applicants contend that the use of open air-interfaces definition and open wireless BIOS architecture to construct the fourth generation mobile communications as disclosed by Applicants and defined in claims 1-14 as “defining a truly service oriented rather than a standard-specific wireless communications platform” has not been shown by the Examiner to be obvious to one ordinary skill in the art.

Based on the preceding arguments, Applicants respectfully maintain that claims 1-14 are not unpatentable over Bushnell et al in view of Wee et al. and are in condition for allowance.

To further contend the distinction to the cited prior art references, request is respectfully made for entry of new claims 21-26 that are also believed to be allowed.

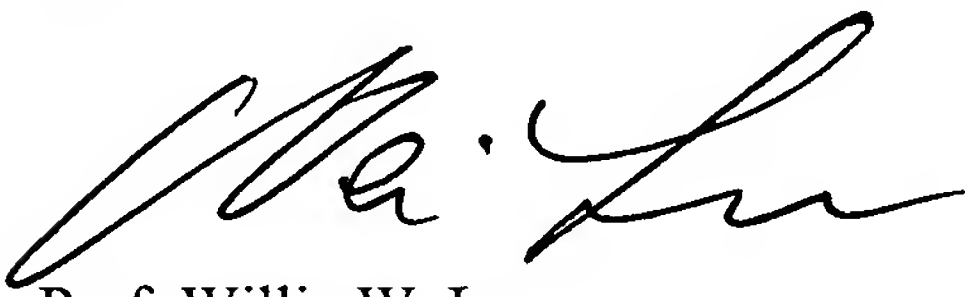
CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invite the Examiner to contact the Applicants directly at the telephone number listed below.

Applicants have made earnest attempt to respond to all the points included in the last office action by preliminary amendment and argument. Consideration of the amended claims and notification of allowance of all pending claims are earnestly solicited.

Respectfully submitted,

BY:

 02/05/2007
@stanford, CA

Prof. Willie W. Lu

1218 Bubb Road

Cupertino, CA 95014

(408) 865-1428

Prof. Willie W. Lu, Director
U.S. Center for Wireless Comm.
P.O. Box 10789
STANFORD, CA 94309, USA
wirelessarchitect.com

Acknowledgment to:

Stanford Law School, Stanford, CA 94305